National Institute of Environmental Health Sciences

Impacts of biofuels on climate change, water use, and land use

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Abstract:

Governments worldwide are promoting the development of biofuels in order to mitigate the climate impact of using fuels. In this article, I discuss the impacts of biofuels on climate change, water use, and land use. I discuss the overall metric by which these impacts have been measured and then present and discuss estimates of the impacts. In spite of the complexities of the environmental and technological systems that affect climate change, land use, and water use, and the difficulties of constructing useful metrics, it is possible to make some qualitative overall assessments. It is likely that biofuels produced from crops using conventional agricultural practices will not mitigate the impacts of climate change and will exacerbate stresses on water supplies, water quality, and land use, compared with petroleum fuels. Policies should promote the development of sustainable biofuel programs that have very low inputs of fossil fuels and chemicals that rely on rainfall or abundant groundwater, and that use land with little or no economic or ecological value in alternative uses.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Ecosystem Changes, Extreme Weather Event, Food/Water Quality, Food/Water Security, Precipitation, Unspecified Exposure

Air Pollution: Ozone, Other Air Pollution

Air Pollution (other): NOx, CO

Extreme Weather Event: Landslides

Food/Water Quality: Biotoxin/Algal Bloom, Chemical, Other Water Quality Issue

Water Quality (other): Eutrophication

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Co-Benefit/Co–Harm (Adaption/Mitigation):

specification of beneficial or harmful impacts to health resulting from efforts to reduce or cope with greenhouse gases

A focus of content

Health Impact:

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Mitigation

Resource Type:

format or standard characteristic of resource

Review

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

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